

**A new species of *Ericusa* H. & A. Adams, 1858
(Gastropoda: Volutidae)
from the bathyal Western Australian waters**

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ABSTRACT. A new endemic species from the southwest waters of the Western Australian continental shelf is described here and compared with related species of the same genus *Ericusa*.

INTRODUCTION

During the early 1980s the Western Australian Fisheries Department designated an area off Rottneest Island where trawler operators could test and try out their trawling equipment. This was done so as to prepare the boats before proceeding to their registered fishing grounds off Shark Bay and off Exmouth Gulf. As technology in the trawling industry progressed, this practice of tryouts ceased and further trawling operations came to an end.

During those trials many interesting species were brought up including numerous small *Ericusa* which differed from what was known, but were informally identified as 'dwarf *Ericusa papillosa*'.

The genus *Ericusa* is an Australian endemic genus, inhabiting the southern waters below the 30° parallel, characterized by a solid shell, fusiform, medium to large, with a non-coronated elongate spire and regularly convex whorls. The protoconch is globose, deviated at 45° from the axis of the shell and frequently with the initial portion protruded. It includes five species and one subspecies: *Ericusa fulgetra* (Sowerby I, 1825), *Ericusa papillosa papillosa* (Swainson, 1822), *Ericusa papillosa kenyoniana* (Brazier, 1898), *Ericusa sericata* Thornley, 1951, *Ericusa sowerbyi* (Kiener, 1839), and the new species we describe here which has been overlooked for many years.

Abbreviations

WAM: Western Australian Museum, Perth.
ca: circa.

SYSTEMATICS

Family **VOLUTIDAE** Rafinesque, 1815
Subfamily **ZIDONINAE** A. & H. Adams, 1853
Tribe **Livoniini** Bail & Poppe, 2001
Genus *Ericusa* A. & H. Adams, 1853

Type species: *Voluta fulgetrum* Sowerby I, 1825

Ericusa naniforma sp. nov.
Figs 1-17

Ericusa papillosa – Wilson, 1994: p. 123, pl. 23, figs 3A-B (only) [(not *Ericusa papillosa* (Swainson, 1822)].

Type material. Holotype in WAM, n° S11656. Length: 62.2 mm, width: 34.2 mm. Paratypes. Paratype I from off Bunbury, no depth given, 65.6 mm, A. Limpus collection; Paratype II from SW Rottneest -300 m, 65.8 mm, P. Bail collection; Paratype III from off Rottneest, -280 m, 60.1 mm, J. Phillip collection.

Other material. Four specimens in A. Limpus collection: 64.9 mm, 62.2 mm, 60.9 mm, 59.5 mm, trawled -400/450 m off southwest Rottneest island; two in P. Bail collection: 63.6 mm, 60.2 mm, trawled -300 m off SW Rottneest; one in J. Philipp collection: 60.1 mm, trawled - 280 m off Rottneest; two in P. Ignoty collection: 65.5 mm, 68.0 mm, trawled -350 m off Cape Leeuwin; one in E. Monnier collection: 61.4mm trawled -350 m off Bunbury; in WAM collection: 1. n° S80349, ca 64.0 mm, [almost complete specimen] NW of Bunbury, 33°S - 114.37°E, HMAS "Diamantina", 17-3-1972, depth 219-221m, 2. S.80347 [2 fragments of body whorl] NW of Bunbury 33°S - 114.38°E, HMAS "Diamantina", 15/3/1972, depth 256m, 3. S11666 [3 fragments] off Three Rocks - 31°6036 S - 114°9850 E - to 31°6103 S - 114.9790°E., RV "Southern Surveyor" depth 275/327m, 19-11-2005, 4. S80348 [fragment only] off Lancelin, 31.04°S - 113.5°E, HMAS "Diamantina", depth 256m, 23.3.1972, 5. S80350 [two fragments] NW of Rottneest Is. 31.45°S - 115.02°E, HMAS "Diamantina", depth 265-276m, 18-3-1972.

Type locality. Off Abrolhos Islands, 28° 48' S - 113° 41' S to 28° 50' E - 113° 42' E. Depth: -416 to -431 m. CSIRO RV "Southern Surveyor". Dec. 2005.

Range. From Houtman Abrolhos [west of Geraldton] to Cape Leeuwin, a rather limited range of 700 km.

Habitat. Most specimens have been trawled between 350-450 m deep. Substrat not given, but most specimens are stained by a rusty layer.

Description. Adult shell very small for the genus, rarely exceeding 65 mm, solid, ovate fusiform with a tapered spire. Surface semi-glossy. Protoconch bulbous, protruded, of 2.5 smooth whorls deviated at 45° from axis of shell, with an average diameter of 7 mm. Transition protoconch - teleoconch gradually marked by occurrence of faint axial striae. Teleoconch of 2.75 gently convex whorls, sculptured by straight; keel-like axial ridges, extending onto the two last whorls, mostly prominent and counted *ca* 45-55 on the last whorl, very attenuated and more numerous on some specimens. Spiral sculpture of close-set faint minute threads extending onto the whole teleoconch, slightly attenuated on the anterior half. Suture simple. Aperture semi-lunar forming an average of 0.72 of total shell length. Outer lip convex, the posterior half thickened and reflected, forming defined canal at adapical end of aperture. Columella almost straight, bearing 4-5 oblique plaits, the adapical the smaller. Fasciole absent. Siphonal notch shallow and wide. Background color yellowish-cream overlain by light pattern of irregular orange-beige blotches forming two wide spiral bands on mid body whorl and on the anterior third, with remnants of marks on the subsutural zone. Protoconch, aperture and columellar plaits beige. Frequent incrustations of rusty deposits on the crest of axial ribs and on the spiral threads

giving irregular revolving rusty bands on some specimens.

Animal. Unknown.

Discussion. We disregard the other members of the genus *Ericusa fulgetra*, *Ericusa sericata* and *Ericusa sowerbyi* which are of large size, different shape and well-differentiated pattern which preclude any confusion.

By its very specific characters such as the very small adult size and ridged surface, *E. naniforma* must be only compared with the ridged specimens of its closely related species *E. papillosa*.

Two populations of sculptured *E. papillosa* occur along the species range:

The first, *E. papillosa kenyoniana* represents the eastern population extending from Coffs Harbour to the east coast of Tasmania and the coast of Victoria east of Lakes Entrance. Generally considered a valid subspecies, it differs from the southern type species *E. papillosa papillosa* by an elongate shape and the presence of solid axial ribs on the whole teleoconch.

No confusion with *E. naniforma* is possible because of its large size, above 120 mm, a depressed rounded protoconch, a shiny surface with a conspicuous tent-like pattern.

The second ridged form of *E. papillosa* occurs here and there all along the species range from Bass Strait to Augusta, especially at a deeper level (350-450 m) than the type species (50-150 m). It is characterized by a smaller size, a squat shape and by irregular axial ridging on the teleoconch.

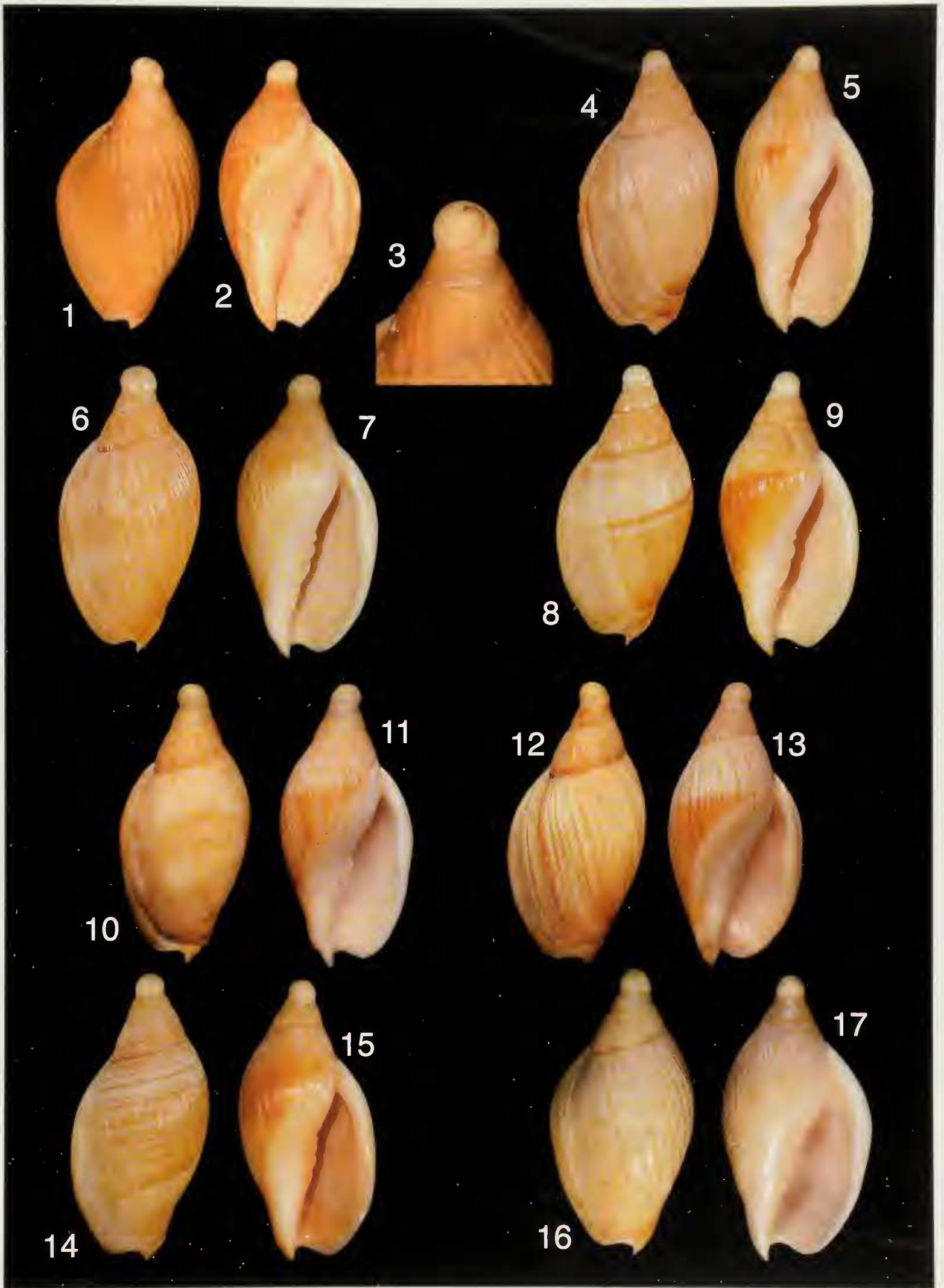
There is an obvious resemblance between this form and *E. naniforma*, but differences are constant (see table) and the shells are unmistakable (plate 2, figs 18-21):

	<i>Ericusa naniforma</i>	ridged dwarf <i>Ericusa papillosa</i>
protoconch	bulbous, protruded	rounded, partly immersed
spire	tapered	large, triangular
shape	elongate ovate	rhomboid
outer lip	convex	slightly flattened in the middle
sculpture	fine, regular, keel-like	coarse, irregular, rounded
pattern	hardly visible	well-defined
siphonal notch	relatively narrow	relatively broad

Figures 1-17 *Ericusa naniforma* sp. nov.

1-3. Off Abrolhos Islands, 28° 48' S - 113° 41' S to 28° 50' E - 113° 42' E, 416-431 m, holotype WAM S11656, 66.1 mm.

4-5. Off Rottnest, 64.9 mm A.L. collection; 6-7. Off Rottnest, 60.9 mm A.L. collection; 8-9. Off Rottnest, 60.1 mm J. Ph.. collection, paratype III; 10-11. Off Rottnest, 65.8 mm P.B. collection, paratype II; 12-13. Off Rottnest, 63.6 mm P.B. collection; 14-15. Off Bunbury, 65.6 mm A.L. collection, paratype I; 16-17. Off Rottnest, 62.2 mm A.L. collection.



Remarks. This species *E. naniforma* presents very few variations, differing only in the number or strength of axial ridges. In most specimens, the light pattern is hardly visible, covered by a thin rusty layer.

The presence of ridges in *E. papillosa* is connected with the depth all along its range and seems linked with a reduced size along the South Australian coast. These shell characters show evident similarities with *E. naniforma* which probably is subject to the same ecological constraints. These two species are very likely related.

Nevertheless, a biogeographical barrier around the Cape Leeuwin separates them and no intermediate shells have been found there up to now, which allows one to suppose the genetic flow to be interrupted, leading to a separation at specific rank with constant and unmistakable differences.

The currents which flow strongly around Cape Leeuwin make a barrier by themselves and this would

be why very few west coast species extend further to the east except several shallower water species of which very few are known. To understand this phenomenon, one can stand at Cape Leeuwin and see the flow of the currents as they swirl around the cape, where it is the meeting of the Circum Polar Antarctic current which flows in a constant easterly direction, and the Leeuwin Current which flows down the W.A. coast. The Leeuwin Current then is forced eastwards, before dissipating in the Great Australian Bight, while the Arctic current continues eastwards to Bass Strait and Tasmania. However, the possibility of sympatry between *naniforma* and dwarf *papillosa* cannot be excluded since specimens possibly similar to *E. naniforma* have been reported found in the far western Great Australian Bight (H. Morrison, pers. com.).

Etymology. Related to its very small size.



Figures 18-21

18 & 20. *Ericusa naniforma* Bunbury, P.B. collection, 65.6 mm; **19 & 21.** *Ericusa papillosa* South Australia, A.L. collection, 56.5 mm.

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